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# A Brief Mindfulness-Based Intervention For Psychological Distress Among University Students: The Mediating Role Of Rumination

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**Abstract**

*The transformation of learning in the digital and artificial intelligence (AI) era requires a shift in the roles of teachers and lecturers from learning implementers and users of innovation to actors capable of strategically directing change. In the context of Islamic Religious Education (PAI), this shift is not merely concerned with the utilization of technology but must also take into account pedagogical, epistemic, ethical, and spiritual dimensions. This article aims to reconstruct the roles of teachers and lecturers as Innovation Agents in the transformation of PAI learning. This study employs a critical literature review approach and conceptual analysis by mapping, critically evaluating, and synthesizing literature on teacher agency, change agency, educational innovation, Technological Pedagogical Content Knowledge (TPACK), digital competence, and the transformation of PAI learning in the AI era. The findings indicate that the role of an Innovation Agent can be reconstructed into seven interrelated dimensions: Change Reader, Innovation Initiator, Learning Designer, Digital and Epistemic Curator, Ethical-Spiritual Gatekeeper, Collaborative Change Maker, and Reflective Evaluator. These seven dimensions form a cycle of professional capacity that enables educators to interpret changes, initiate innovations, design learning experiences, manage technology and knowledge, uphold ethical and spiritual orientations, foster collaboration, and conduct evaluation and reflection. This reconstruction positions PAI teachers and lecturers as strategic actors who not only utilize innovation but also actively direct the continuous transformation of learning.*

**Keywords:** ***Innovation Agent, teacher agency, learning transformation, Islamic Religious Education.***



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## INTRODUCTION

Psychological distress among university students presents a substantial challenge for higher education, creating a need for interventions that are accessible, theoretically grounded, and supported by rigorous evidence. The scale of this challenge is illustrated by the World Health Organization World Mental Health International College Student Project. Across 13,984 full-time first-year students from 19 colleges in eight countries, 35.3% screened positive for at least one of the assessed lifetime mental disorders, while 31.4% screened positive for a disorder within the preceding 12 months (Auerbach et al., 2018). Although these estimates represent screening results for selected disorders rather than the prevalence of psychological distress itself, they demonstrate a substantial burden of mental health difficulties in participating student populations. These findings provide an important rationale for developing early interventions while avoiding the assumption that the estimates directly represent all universities or Indonesian students.

Addressing this burden requires attention to the psychological processes that may sustain distress alongside the demands students encounter. In the present study, psychological distress is conceptualized as a dimensional experience of emotional suffering rather than a psychiatric diagnosis. A particularly relevant process is rumination: repetitive thinking about negative experiences, emotional difficulties, and their implications. Longitudinal research involving adolescent and adult samples has supported rumination as a transdiagnostic factor connecting depressive and anxiety symptoms (McLaughlin & Nolen-Hoeksema, 2011). This evidence provides a rationale for examining rumination as an intervention target, although it does not establish that changing rumination necessarily produces symptom improvement among university students.

The conceptual precision of this target is important. Rumination should not be treated as equivalent to every form of reflection or repetitive thought. Treynor et al. (2003) distinguished brooding from reflective pondering, demonstrating the importance of separating different components of rumination. Building on this distinction, the present study focuses on brooding as a candidate maladaptive mechanism: a passive, evaluative pattern of dwelling on difficulties. This focus permits a more specific question than whether an intervention reduces an overall repetitive-thinking score namely, whether changes in brooding help explain subsequent changes in distress.

Mindfulness-based interventions offer a plausible approach to addressing this process because they encourage present-focused attention and a less judgmental relationship with


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internal experiences. Evidence in university populations is promising. Dawson et al. (2020), in a systematic review and meta-analysis of randomized controlled trials, found small-to-moderate improvements in several outcomes, including distress and rumination, relative to passive controls. A smaller randomized trial involving 40 university students also reported reductions in state anxiety and perceived stress following brief mindfulness training (de Sousa et al., 2021). Together, these findings support further investigation of brief delivery formats, while differences in comparators, samples, and outcomes require caution when interpreting their effectiveness.

More recent research has moved beyond general mindfulness efficacy toward shorter interventions and the joint assessment of emotional symptoms and repetitive thinking. Barcaccia et al. (2024) studied 486 university students and reported reductions in depression, rumination, and trait anxiety following a 28-day online mindfulness intervention. However, its pre–post assessment and outcome analysis did not establish whether reductions in rumination preceded and mediated later symptom improvement. Shi et al. (2025), in a trial involving 196 Chinese university students, reported that between-group improvements in rumination were not significant immediately after the intervention but emerged at the three-month follow-up. These findings indicate that the timing of changes in rumination warrants explicit investigation rather than assuming that rumination and emotional symptoms improve simultaneously.

The Indonesian literature also requires careful consideration when defining the research gap. Yan et al. (2025) published a protocol for a 14-day online mindfulness trial among Indonesian undergraduate students that explicitly includes repetitive negative thinking as a mediator. Consequently, neither conducting a brief mindfulness intervention in Indonesia nor introducing repetitive negative thinking into a mediation model constitutes a sufficient novelty claim. The more specific unresolved question motivating the present study is whether brooding, distinguished from reflective pondering and broader repetitive negative thinking, represents an informative pathway linking a brief mindfulness intervention to subsequent psychological distress. This question concerns mechanism specificity rather than the mere presence of a mediation analysis.

Accordingly, the proposed contribution is a focused test of brooding within an intervention framework. The study will distinguish brooding from reflective pondering, assess the proposed mediator during the intervention before the principal subsequent distress assessment, and compare the intervention with a time- and attention-matched psychoeducational condition. These features are intended to improve interpretability by examining a clearly defined cognitive


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process and reducing alternative explanations associated with attention and participation. Their combined contribution should be understood as a proposed extension of existing evidence, rather than a claim that active controls, repeated measurement, or mediation testing are individually unprecedented. Moreover, temporal ordering and randomized intervention assignment strengthen the design but do not, by themselves, establish a causal effect of the mediator.

Therefore, this study aims to evaluate whether a brief mindfulness-based intervention reduces psychological distress among Indonesian university students relative to an active psychoeducational control and to examine whether reductions in rumination, particularly brooding, statistically mediate subsequent improvements in distress. A secondary objective is to examine whether improvements are maintained at follow-up. It is hypothesized that students receiving the mindfulness intervention will demonstrate greater reductions in distress and brooding, and that earlier reductions in brooding will be associated with lower subsequent distress after accounting for baseline levels. By integrating intervention evaluation with a specific, temporally ordered mechanism, the study seeks to clarify both the potential value of a brief intervention and the cognitive pathway through which its benefits may emerge.

## METHODS

This study will employ a systematic literature review with qualitative narrative synthesis to examine brief mindfulness-based interventions for psychological distress among university students and evidence concerning the mediating role of rumination. The qualitative orientation refers to the interpretation of published findings rather than primary qualitative data collection (Grant & Booth, 2009; Snyder, 2019). Reporting will follow PRISMA 2020 and relevant Synthesis Without Meta-analysis recommendations, with a protocol specifying eligibility, screening, appraisal, and synthesis procedures established before screening begins (Campbell et al., 2020; Page et al., 2021).

Searches will cover Scopus, Web of Science, APA PsycINFO, PubMed/MEDLINE, CENTRAL, and GARUDA from database inception to the final search date. Keywords will combine mindfulness, university students, rumination, brooding, and repetitive negative thinking, using database-specific syntax. Eligible studies will comprise peer-reviewed randomized and controlled nonrandomized intervention studies in English or Indonesian involving university students aged ≥18 years. Brief interventions will be operationally defined as structured mindfulness programs


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lasting no more than four weeks. Studies must measure rumination and psychological distress or clearly identified related symptoms; global distress and individual symptom domains will be synthesized separately. Brooding, reflective pondering, and broader repetitive negative thinking will be distinguished where possible (Dawson et al., 2020; McLaughlin & Nolen-Hoeksema, 2011; Treynor et al., 2003).

Two reviewers will independently screen records and assess full texts, resolving disagreements through discussion or a third reviewer. One reviewer will extract study characteristics, intervention dose, comparators, instruments, assessment timing, outcomes, and mediation findings, while a second verifies accuracy. Risk of bias will be assessed using RoB 2 for randomized trials and ROBINS-I for controlled nonrandomized studies (Higgins et al., 2019). Mediation assessment will additionally consider temporal ordering, baseline adjustment, potential confounding, and indirect-effect estimates with uncertainty intervals (Gu et al., 2015).

Findings will undergo structured narrative comparison and qualitative coding, with thematic procedures adapted for documentary interpretation (Thomas & Harden, 2008). Formal mediation findings will be separated from studies showing concurrent changes without mediation testing. Effect estimates and confidence intervals will be retained where available; conclusions will not rely on counting statistically significant findings (Campbell et al., 2020). The review will maintain an audit trail, report inconsistent evidence, and avoid claims of independently establishing causal mediation. Institutional requirements for ethical review or exemption will be checked because the study uses published, nonidentifiable information.

## RESULTS AND DISCUSSION

### Effects of brief mindfulness-based interventions on psychological distress

The studies examined suggest that brief mindfulness-based interventions can improve distress-related outcomes among university students, although their findings differ in outcome specificity, comparator conditions, and assessment timing. Cavanagh et al. (2013) reported improvements in perceived stress and anxiety/depression symptoms following a two-week online intervention involving 104 students. De Sousa et al. (2021) likewise reported reductions in state anxiety and perceived stress following three days of mindfulness training. These findings indicate that psychological improvement can occur without completing a conventional eight-week program. Nevertheless, immediate changes in state anxiety or perceived stress should not be interpreted as equivalent to sustained improvement in global psychological distress. The


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former may reflect short-term emotional regulation, whereas the latter requires evidence across broader symptoms and subsequent assessments.

The distinction between outcome domains affects how intervention benefits should be interpreted. A program may reduce students' immediate tension without substantially changing depressive symptoms, functioning, or persistent emotional difficulties. Accordingly, combining stress, anxiety, depression, and global distress into a single narrative of "mental health improvement" would obscure clinically and theoretically relevant differences. Dawson et al. (2020) found benefits across several psychological outcomes relative to passive controls, but this broader pattern does not imply that every brief program improves every outcome. Querstret et al. (2020) also reported benefits in nonclinical samples; however, their findings concern broader mindfulness programs and populations and therefore provide contextual support rather than direct estimates for the narrowly defined brief student interventions considered here.

**Changes in rumination and their temporal relationship with distress**

Evidence concerning rumination suggests that its response to mindfulness is not uniform across assessment periods. Barcaccia et al. (2024) reported reductions in rumination, depression, and trait anxiety following a 28-day online intervention. In contrast, Shi et al. (2025) reported that reductions in rumination were not significant immediately after intervention but emerged at three-month follow-up. This divergence raises a substantive question: does cognitive change occur during treatment, consolidate afterward, or follow emotional improvement? The studies do not establish a single answer. They instead indicate that post-intervention measurement alone may miss changes that develop later and that simultaneous improvement cannot establish which variable changed first.

One possible interpretation is that mindfulness skills require repeated application before they alter habitual thinking. Another is that early relief from emotional symptoms makes disengagement from repetitive thought easier. These are competing explanations rather than demonstrated findings. Jain et al. (2007), whose one-month student trial assessed both rumination and distress while comparing mindfulness with relaxation, illustrates the relevance of examining cognitive and emotional outcomes together. However, measuring both constructs remains insufficient to establish that reduced rumination explains subsequent distress reduction. This requires an explicit indirect-effect analysis and a measurement schedule capable of evaluating the proposed sequence.


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**Evidence concerning mediation**

The literature contains evidence relevant to mediation, but its applicability varies. Cavanagh et al. (2018) reported mediation through perseverative thinking in a two-week intervention involving university staff and students. However, the mixed population and broader mediator prevent treating this as direct evidence of rumination-specific mediation among students. Their findings also differed according to the comparison condition, indicating that support for a mechanism may depend on the intervention contrast being examined. A pathway identified against a waitlist may therefore be less informative about the distinctive contribution of mindfulness when compared with another credible psychological intervention.

Gu et al. (2015) provide a broader review of mechanisms in mindfulness-based interventions, supporting investigation of cognitive processes while also demonstrating that the mechanism question extends beyond any single student program. In Indonesia, Yan et al. (2025) explicitly proposed examining repetitive negative thinking as a mediator of brief mindfulness effects. Their publication is a protocol and cannot be counted as evidence that mediation occurred. Taken together, these sources justify further mechanism-focused investigation but do not establish that rumination consistently or causally mediates the effects of brief mindfulness interventions among university students.

## DISCUSSION

**Mindfulness as a change in the relationship with thought**

A theoretically coherent interpretation is that mindfulness may reduce distress by changing how students respond to negative thoughts. Academic setbacks can trigger repeated evaluations of personal inadequacy, anticipated failure, or unresolved mistakes. Mindfulness practice may help students recognize these evaluations as mental events rather than treating them as accurate conclusions requiring continued analysis. Within this interpretation, the relevant change is reduced engagement with repetitive evaluation, rather than complete removal of negative thoughts. This account is compatible with descriptions of rumination as a process that prolongs negative affect and interferes with adaptive responding (Nolen-Hoeksema et al., 2008; Watkins & Roberts, 2020). It remains a theoretical explanation unless the relevant processes are measured directly.

This distinction has practical implications for intervention evaluation. An effective program need not eliminate academic stressors or prevent unpleasant thoughts. It may instead


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reduce the duration or intensity of students' involvement in repetitive thinking. However, improvements could also arise through alternative pathways, including increased perceived control, scheduled recovery time, or supportive attention. Consequently, a statistically significant intervention effect does not identify its active mechanism. Mechanism claims require evidence that the proposed mediator changes in relation to treatment and predicts subsequent outcomes under defensible assumptions.

**Why brooding requires separate examination**

Rumination should not be treated as a homogeneous construct. Treynor et al. (2003) distinguished brooding from reflective pondering, making it important to examine which component an intervention changes. A total rumination score may conceal meaningful differences: a student might become less trapped in self-critical comparison while retaining the capacity to reflect on problems. Therefore, interpreting all self-focused thinking as undesirable would weaken the conceptual precision of the review. The more informative question is whether mindfulness reduces repetitive, evaluative engagement that sustains distress while preserving potentially useful reflection.

The transdiagnostic evidence reviewed by McLaughlin and Nolen-Hoeksema (2011) supports the relevance of rumination to both depressive and anxiety symptoms. Nevertheless, transdiagnostic relevance does not mean that the same pathway explains all emotional outcomes equally. Brooding may be particularly relevant to some symptom profiles, whereas other processes may better explain changes in anxiety or perceived stress. A future study comparing brooding, reflective pondering, and broader repetitive negative thinking could clarify mechanism specificity. The novelty would lie in this discriminating test, rather than in merely adding "rumination" to a mediation model.

**Comparator conditions and the limits of causal interpretation**

Comparator selection is central to interpretation. A waitlist comparison evaluates whether offering a program produces benefits beyond waiting, but it does not isolate mindfulness from expectations, attention, or structured activity. Active controls provide a more demanding comparison, although they may themselves contain beneficial elements. Accordingly, a smaller between-group difference against an active control need not imply that mindfulness has no value; it may indicate that both conditions provide useful support. Conversely, a large


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effect against a passive control should not automatically be attributed to a mindfulness-specific cognitive process.

Randomization also requires careful interpretation in mediation research. Random assignment strengthens inference about the intervention contrast, but students are not randomly assigned to different levels of rumination. The relationship between mediator change and outcome change may still be influenced by adherence, baseline symptoms, concurrent treatment, or unmeasured events. Measuring rumination before the later distress outcome improves temporal interpretation, but does not eliminate confounding. Claims that rumination "explains" intervention effects should therefore specify whether this means statistical mediation, temporal evidence, or a stronger causal interpretation.

**Intervention dose, digital delivery, and sustained benefit**

Brief duration should be interpreted alongside exposure. A short program with lengthy daily sessions may be more demanding than a longer program with brief exercises. Howarth et al. (2019) documented substantial diversity in brief mindfulness research, supporting attention to content, setting, and dose rather than duration alone. Similarly, online delivery may increase access while leaving adherence unresolved. Spijkerman et al. (2016) and Sommers-Spijkerman et al. (2021) support the potential of online mindfulness across broader populations, but accessibility should be distinguished from sustained participation and meaningful improvement.

Longer-term evidence provides useful context without establishing the durability of brief programs. Galante et al. (2018) reported reduced examination-period distress following an eight-week student course, and their follow-up suggested benefits extending to one year, with attrition limiting interpretation (Galante et al., 2021). These studies exceed the proposed four-week eligibility threshold. Their relevance is therefore methodological: sustained benefit must be measured rather than inferred from immediate improvement. Brief programs require their own follow-up evidence before being described as producing durable protection.

**Implications for Indonesian universities and the contribution of the review**

For Indonesian universities, the potential contribution is a precise account of what brief mindfulness may achieve, through which processes, and under what conditions. Yan et al. (2025) demonstrate that brief intervention and repetitive-thinking mediation are already part of the Indonesian research agenda. Future contributions should therefore address construct specificity,


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culturally comprehensible instruction, adherence, and temporal testing. The substantial international burden reported by Auerbach et al. (2018) strengthens the rationale for accessible support, but it does not establish Indonesian prevalence or prove that mindfulness is sufficient to address all student needs.

The proposed review can contribute by separating intervention efficacy from mechanism evidence and by distinguishing rumination from broader repetitive thinking. Its strongest defensible conclusion is that brief mindfulness interventions show potential for reducing distress-related symptoms, while rumination remains a plausible mechanism whose specificity, timing, and causal status require stronger investigation. A completed systematic review should determine whether this interpretation survives study selection, risk-of-bias appraisal, and sensitivity analyses rather than presenting theoretical coherence as empirical confirmation.

## CONCLUSION

Based on a critical synthesis of the literature, brief mindfulness-based interventions show potential for reducing psychological distress and related symptoms among university students, including stress, anxiety, and depression, although their benefits vary according to participant characteristics, intervention dose, adherence, comparator conditions, and assessment timing. Rumination represents a relevant candidate mechanism of change, as mindfulness is thought to help students disengage from repetitive negative thinking through present-moment attention and a nonjudgmental attitude. However, reductions in rumination occurring alongside improvements in distress are insufficient to establish causal mediation, particularly when studies employ simultaneous measurements or assess broader constructs of repetitive negative thinking. Distinguishing between brooding and reflective pondering, measuring the mediator before the outcome, using active controls, and conducting follow-up assessments are necessary to clarify mechanism specificity and the durability of benefits. In Indonesian higher education, brief mindfulness interventions could be developed as part of accessible psychological support that considers cultural suitability and student needs. Accordingly, this review's principal contribution is to clarify the distinction between evidence of intervention benefits and evidence of mechanisms of change, while the strength of its conclusions requires further confirmation through systematic literature selection and risk-of-bias assessment.


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**FUTURE DIRECTIONS**

Future research should clarify the conditions under which brief mindfulness-based interventions reduce psychological distress among university students. Particular attention should be given to baseline symptom severity, previous meditation experience, intervention intensity, delivery format, and adherence. Adequately powered randomized controlled trials using credible active comparators would help determine whether improvements reflect mindfulness-specific processes or factors shared with other psychological interventions, such as supportive attention, structured activity, and treatment expectations.

Further studies should investigate rumination as a mechanism of change rather than assuming that concurrent reductions in rumination and distress demonstrate mediation. Repeated assessments during intervention and follow-up should establish whether changes in rumination precede subsequent improvements in distress while accounting for baseline differences and plausible mediator–outcome confounders. Distinguishing brooding from reflective pondering, worry, and broader repetitive negative thinking would strengthen conceptual precision. Comparing these processes within the same analytical framework could clarify which cognitive changes most consistently account for intervention benefits.

Research should also examine the sustainability and practical implementation of brief mindfulness programs in university settings. Longer follow-up periods are needed to determine whether initial improvements persist during examinations, academic transitions, and other demanding periods. Studies should assess psychological symptoms alongside functioning, academic engagement, acceptability, dropout, and adverse experiences. For digitally delivered interventions, evaluating actual practice patterns, facilitator support, and accessibility would help identify delivery conditions that support sustained participation.

In Indonesia, future investigations should evaluate culturally appropriate materials and the suitability of measurement instruments across diverse student populations and institutional settings. Multisite studies could examine how language, socioeconomic circumstances, digital access, and campus support influence participation and outcomes. Preregistered protocols, transparent reporting, and robust handling of missing data would strengthen the evidence base. These developments would help translate the proposed role of rumination into a more precise understanding of intervention mechanisms and inform the responsible integration of brief mindfulness programs into university psychological support services.



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